

REMARKS

Claims 1-26 are pending in the application.

Claims 1-26 have been rejected.

Claims 1-2, 5, 13-14 and 17 have been amended.

Claims 3, 15 and 25-26 have been canceled.

Unless otherwise specified in the below discussion, Applicants have amended the above-referenced claims in order to provide clarity or to correct informalities in the claims. Applicants further submit that, unless discussed below, these amendments are not intended to narrow the scope of the claims. Applicants have also canceled claims in order to clarify the issues for prosecution. By these amendments and cancellations, Applicants do not concede that the cited art is prior to any invention now or previously claimed. Applicants further reserve the right to pursue the original versions of the claims in the future, for example, in a continuing application.

Rejection of Claims Under 35 U.S.C. §103

Claims 1-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,405,284 issued to Bridge (“Bridge”) and U.S. Patent No. 5,819,310 issued to Vishlitzky et al. issued to (“Vishlitzky”). Applicants traverse this rejection.

Independent Claims 1 and 13, as amended, each contain limitations of substantially the following form:

in response to a request to perform a plurality of operations on a plurality of logical volumes,

identifying a first storage region of a plurality of storage regions available for allocation for a first operation of the plurality of operations on a first logical volume of the plurality of logical volumes; determining whether each of the remaining operations of the plurality of operations can be performed on the remaining volumes of the plurality of logical volumes using one or more subsets of the plurality of storage regions, wherein

the one or more subsets exclude the first storage region; and
allocating the first storage region for the first operation if said determining determines that each of the remaining operations can be performed.

See, e.g., Claim 1 (amended). Applicants respectfully submit that neither Bridge nor Vishlitzky, alone or in combination, provides disclosure these limitations.

The amended independent claims clarify that the “identifying” and “determining” limitations occur prior to allocation of the first storage region for the first operation. Further, the “allocating” limitation only occurs if the “determining” limitation determines that each of the remaining operations can be performed. Support for these amended limitations can be found at least at Application, Figure 3 (elements 302, 306, 308, 311, 312 and 314) and Application, ¶¶ [0036]-[0037] (establishing that an evaluation of the remaining physical regions is performed prior to actually allocating the space for the first selected operation).

Applicants respectfully submit that the cited sections of Bridge disclose an allocation of the disclosed primary extent occurs first and then an evaluation of free space to handle the mirror partners occurs after the allocation. *See* Bridge, Fig. 11.

Referring now to FIG. 11, the following actions are performed to accomplish the allocation:

1. Find a disk drive for the primary extent of the parity extent set (1102) and allocate parity extent on selected disk drive (1104). In an embodiment,

a round robin algorithm is used to evenly spread extents across disk drives.

2. Allocate data extents on full mirror partners of the disk drive containing the parity extent (1106 and 1108). Each data extent should be in a different failure group. To limit exposure to multiple disk failures, mirror only partners should not be used for parity protected data. The selected full mirror partners should have available free space to allocate the data extents. If sufficient full mirror partners cannot be found (1108), then deallocate the primary extent (1107) and go back to 1102 to select a different disk drive for the primary parity extent.

Bridge 19:38-54 (emphasis added). Thus, the primary parity extent is allocated and then a purported evaluation of space occurs for the full mirror partners. *Id.* If the full mirror partners cannot be found, then the primary parity extent is deallocated. *Id.*

The cited section of Bridge cannot disclose the amended independent claims because Bridge requires allocation of the primary parity extent (equated by the Office Action to the claimed first operation) prior to a determination of availability of space for the mirror partners (equated by the Office Action to the claimed remaining operations). *See* Office Action, p.3. By contrast, the amended claims provide that no allocation of a storage region for the first operation occurs until after a determination is made of available space for the remaining operations. Further, there is no indication in the cited section of Bridge of any capacity to perform its disclosed actions without the prior allocation of space for the disclosed parity extent. Thus, the cited section of Bridge clearly teaches away from the claimed limitations.

Applicants further submit that the cited sections of Vishlitzky fails to provide this missing disclosure. The Office Action only cites Vishlitzky for the purported proposition that Vishlitzky “teaches of a mirrored set, mirroring data from one logical volume to another.” Office Action, p.3 (citing Vishlitzky 6:25-40). The Office Action does not cite

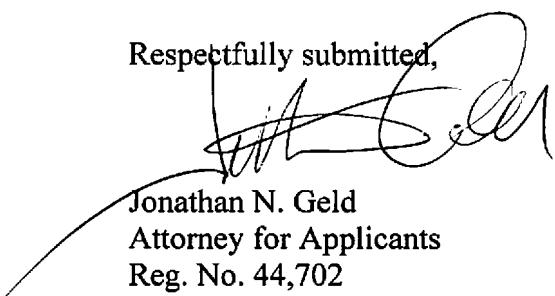
Vishlitzky for any proposition related to allocation of space or checking for available space prior to allocation. *See id.*

For at least these reasons, Applicants submit that neither the cited sections of Bridge nor Vishlitzky, alone or in combination, provide disclosure of all the limitations of independent Claims 1 and 13, as amended, and all claims depending therefrom. Applicants therefore respectfully request the Examiner's reconsideration and withdrawal of the rejections to these claims and an indication of the allowability of same.

CONCLUSION

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5090.

Respectfully submitted,



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